Fermilab Today

Thursday, Aug. 7, 2008

Calendar

Thursday, Aug. 7
1:30 p.m.
DOE All-Hands meeting - Ramsey Auditorium
Speaker: DOE Secretary Bodman

THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK
THERE WILL BE NO THEORETICAL PHYSICS SEMINAR THIS WEEK
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, Aug. 8
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Joint Experimental-Theoretical Physics Seminar - One West
Speaker: P. Kim, Stanford Linear Accelerator Center
Title: Observation of the Bottomonium Ground State
8 p.m.
Fermilab International Film Society - Ramsey Auditorium
Tickets: Adults $5
Title: Paris, Texas

Saturday, Aug. 9
8 p.m.
Fermilab Arts Series - Ramsey Auditorium
Tickets: $17/$9
Title: Kennedy's Kitchen

Click here for NALCAL, a weekly calendar with links to additional information.

Weather

Feature

FFSE picnic celebrates science education

Teachers, educators and students who participated in education programs sponsored by Fermilab Friends for Science Education celebrate at an annual appreciation picnic.

Instead of relaxing at home on her summer break, Anne Casper decided to travel 600 miles to study particle decays. The teacher at Nardin Academy in Buffalo, NY, spent a week sharpening her physics teaching skills at the QuarkNet "BootCamp" at Fermilab.

Casper was one of 50 teachers and students who attended summer education programs. They participated in the annual Fermilab Friends for Science Education appreciation picnic on July 17 at Kuhn Barn. Guests ate cherry pie and ripe watermelon, played stick ball and traded insider teaching strategies.

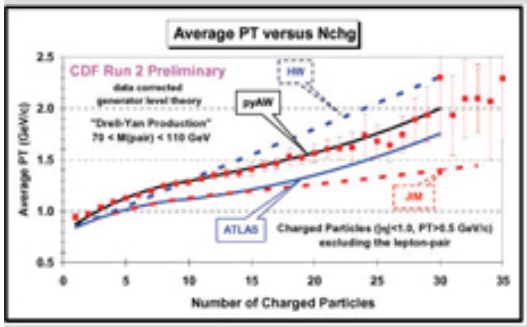
"It's very exciting being at Fermilab. I teach physics to juniors at an all-girls school, and I am the only physics teacher. I really can't express what a relief it is to talk to others like me!" Casper said.

Each year, approximately 2,800 teachers come to Fermilab to participate in continuing science education programs. The programs, designed to enhance the teaching of science and mathematics, were developed by Fermilab's Education Office with additional financial support from FFSE. The non-profit organization formed in 1983 to support K-12 education programs at Fermilab.

"Teachers get up to speed on the latest developments in experiments such as ATLAS and CMS. They also build relationships with

Fermilab Result of the Week

Studying the underlying event in Drell-Yan production at CDF



The figure shows the average transverse momentum versus the number of charged particles with pT > 0.5 GeV/c and |eta| < 1 (excluding the lepton pair) for Drell-Yan production in the region of the Z-boson (70 < M(pair) < 110 GeV/c^2) in proton-antiproton collisions 1.96 TeV.

In order to find "new" physics at a hadron-hadron collider, it is essential to have computer models, called Monte Carlo models, that accurately simulate what happens in the collision. At the Tevatron, we create collisions between protons and antiprotons, which belong to the class of hadrons. Each proton contains three quarks and each antiproton contains three antiquarks. Typically, only two of the six quarks collide. However, to fully simulate the physics of the collision, we have to pay attention not only to the two colliding quarks but to the behavior of the other four as well. To do this, scientists must have a good understanding of the hard scattering (the quarks that collided) part in the hadron-hadron interaction, but also of the softer (remaining quarks) components. These soft components are referred to as the underlying event.

CDF scientists have studied the outgoing charged particle distributions in pairs of leptons produced from either a Z-boson or a photon, which is produced via the Drell-Yan process, as a probe to understand the soft component of the collision. The scientists study variables that are sensitive to different components of the underlying event. For example, the plot shown above is sensitive to the modeling of the multiple parton (quark or gluon) interactions where more than one parton per proton or anti-proton participates in the collision. Scientists can compare the data

Mostly Sunny
88°/67°

[Extended Forecast](#)
[Weather at Fermilab](#)

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, Aug. 7
- Southwestern chicken tortilla
- Philly style cheese steak
- *Garlic herb roasted pork
- Smart cuisine: southwestern grilled chicken
- *Southwestern turkey wrap
- Assorted slice pizza
- *Marinated grilled chicken caesar salads

Wilson Hall Cafe menu

Chez Leon

Thursday, Aug. 7
Dinner
- Melon & prosciutto
- Ancho chili pork tenderloin with caramelized onions
- Red rice
- Vegetable of the season
- Hazlenut cake with blueberries

Wednesday, Aug. 13
Lunch
- Stuffed summer vegetables
- Peach & strawberry shortcakes

Chez Leon menu
Call x4598 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

other physics teachers, and they can reflect on their teaching methods," said Susan Dahl, FFSE board president.

Teachers get behind-the-scenes tours of Fermilab, participate in research scenarios and attend lectures by leading physicists. Other teachers learn about the prairie ecosystem, participate in field studies and learn how to prepare the prairie stewards of the future.

"The picnic gives us the opportunity to celebrate these wonderful programs and the people who participated in them." Dahl said.

-- Jennifer L. Johnson

Announcement

Secretary Bodman at DOE All-Hands Meeting Thursday

Satellite broadcast in Ramsey Auditorium today at 1:30 p.m.

At the Department of Energy's All-Hands meeting today, Secretary Bodman will speak to the reality of our energy and national security challenges. He will highlight the unique ability of the DOE complex to respond to those challenges both today and moving forward. DOE and contractor employees are invited to attend. Fermilab will broadcast the meeting in the auditorium at 1:30 p.m.

Milestone

Al Beutler retires


Albert Beutler

Albert Beutler loves a challenge.

For that reason, he learned computer-assisted design and often worked through lunch to come up with new fixtures for welds.

For the same reason, he will miss not completing work on cutting-edge superconducting cavities. The 66-year-old retired last month.

Mike Foley, an engineer, said Beutler was a significant part of the superconducting cavity project, which has seen six of its eight cavities so far test 60 to 70 percent above design specifications. Beutler created the fixtures to weld the cavities together and add helium vessels.

distributions to various Monte Carlo models. Each model has various parameters that scientists can adjust. The task at hand is to use a Monte Carlo model with a single set of parameters to describe all observed data in a hadron-hadron collision, which includes both soft and hard components. The plot shows that one of the Monte Carlo models describes this distribution well, while the other three models do not fit the data.

Every day at CDF, scientists discover more about the way nature works. They use this knowledge to improve the Monte Carlo models that simulate hadron-hadron collisions using Quantum Chromodynamics. The underlying event is an unavoidable background to most collider observables. A good understanding of it will lead to more precise measurements at the Tevatron and the LHC. CDF physicists are working to understand and model the underlying event at the Tevatron and are also trying to extrapolate what they learn to the LHC.

Learn more


Rick Field
University of Florida


Deepak Kar
University of Florida

Accelerator Update

August 4-6
- Two stores provided ~16 hours and 44 minutes of luminosity
- TeV recovered from lightning strike on C3 service building
- TeV sector F2 power supply still a problem
- Power glitch trips off equipment, but stack, stash and store remains intact

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Info

Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and suggestions to:
today@fnal.gov

"I can't emphasize enough how good that guy is. He is a very clever welding-fixture designer with tremendous mechanical aptitude," Foley said.

Beutler's work during the last seven years focused on producing cavities for use at DESY and on cavity R&D for a potential future linear collider. That work often took him to a private company in Chicago that does portions of the cavity work. Beutler designed the fixtures for the company's use and also provided training films he devised by using small cameras to film how to weld inside the cavities without melting the epoxy, a tricky procedure. Back at Fermilab, he inspected the industry work and did the final acid etching and rinses.

Before that, Beutler did various jobs on the Main Ring and Switchyard, installing and aligning magnets and building shutter kickers that open paths on the magnets to accommodate the change in the beam's orbit as it decelerates. He also worked in the Linac drift tubes.

Working on the calorimeters, wiring and welding at Experiment 760 presented one of the most interesting challenges. He had to figure out how to hide the wiring so that it wouldn't interfere with the particle detection.

"It was like a puzzle," Beutler recalls. "It was a neat project. It takes a lot of creativity when you are trying to do this stuff."

-- *Tona Kunz*

Have a safe day!

Supervisors performance review help
Managers and supervisors who need help with the performance review can attend a review briefing from 8:30 - 11:30 a.m. on Thursday, Aug. 7. The briefing will help answer questions about the performance review process, including the form and compensation. Learn more and enroll

Interactive Vehicle Safety Seminar Friday
An interactive vehicle safety event will take place from 11:30 a.m. - 1 p.m. on Friday, Aug. 8, as part of the Interactive Vehicle Safety Seminar in the Wilson Hall west overflow parking lot. Read more.

Fermi Singers concert postponed
The Fermi Singers concert, originally scheduled for today at noon in the auditorium, has been postponed to a future date.

Bowling league sign up
Fermilab Wednesday night bowling league is looking for individuals or teams. This mixed league bowls after work at 5:30 p.m. All skill levels are welcome. Bowling begins Sept. 3, at Bowling Green Sports Center on Rt.38 - 1/2 Mile West of Rt.59. Season is 30-weeks long the cost is $15/week. Any person or team interested should contact Al Legan at x4074 legan@fnal.gov or Rich Neswold x3454, neswold@fnal.gov. More information.

Benefit customer service survey
The Benefits Office invites you to participate in a customer service survey. We will use the feedback to evaluate current service level and compare the results to customer service standards. We appreciate your assistance in gathering this data. The survey is available in the Benefits Office, WH 15th floor or on the Benefits Office Web site.

Additional Activities